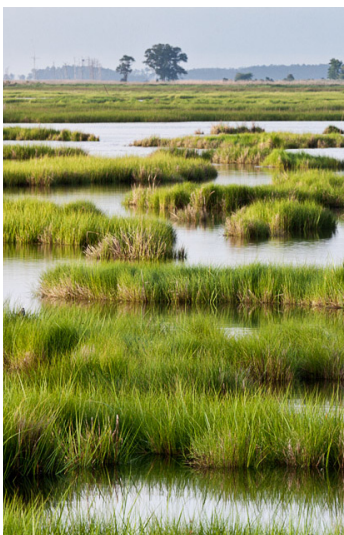
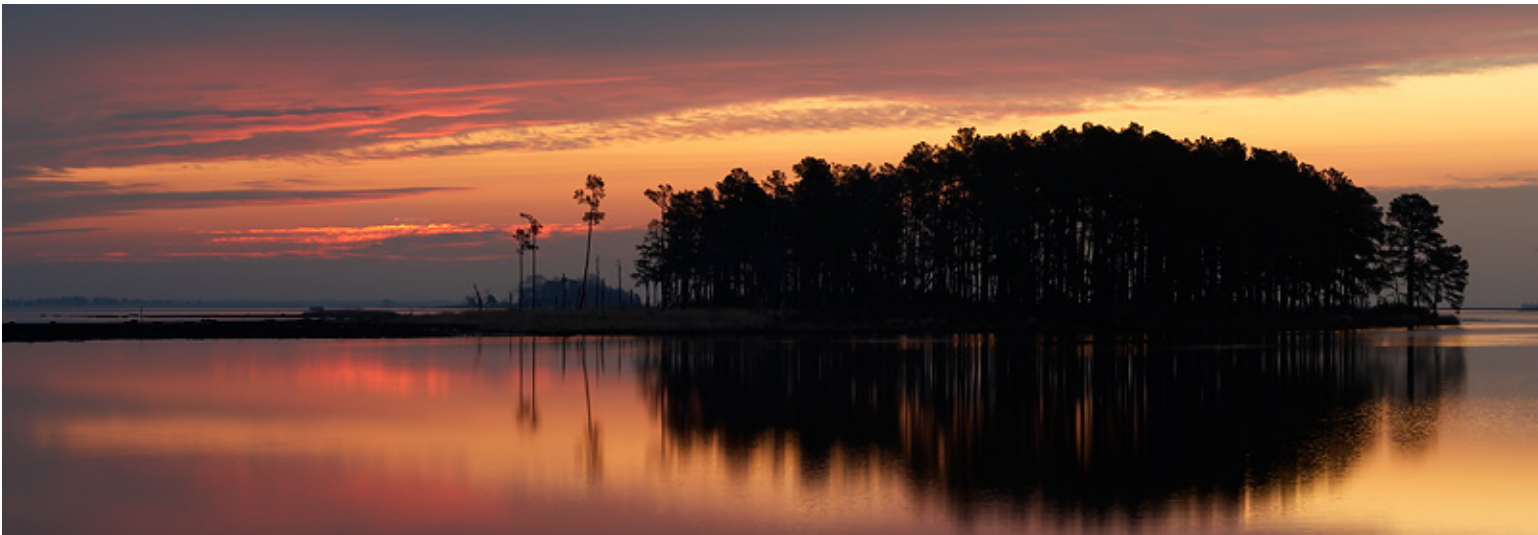


U.S.FISH & WILDLIFE SERVICE

BLACKWATER NATIONAL WILDLIFE REFUGE

Blackwater Climate Adaptation Project



THE CONSERVATION FUND



INTRODUCTION

The Blackwater Climate Adaptation Project is a partnership between The Conservation Fund, Audubon Maryland/DC and the U.S. Fish and Wildlife Service (USFWS) supported by a grant from the Town Creek Foundation. Our objective is to ensure the long term persistence of high tidal marsh habitat in Dorchester County, MD together with its full assemblage of associated bird species and other wildlife. Rapid sea level rise threatens the survival of this ecosystem during the current century. This Assessment is the first step toward developing a sea level rise adaptation strategy and corresponding actions to conserve the tidal marshes of Blackwater and the surrounding lands in Dorchester County, Maryland for the long term.

The key theme is the persistence of tidal marsh habitat over time. Although most of the existing marshes in Dorchester County are already protected, the great majority of this ecosystem is threatened by sea level rise. Whether these marshes will continue to persist depends in major measure, on their location and rate of projected inundation. This Assessment is designed to determine whether it appears feasible to resist inundation in places and also to plan for the eventual migration of marshes to ensure their persistence. The major product of the resulting adaptation strategy will be a scientifically based and spatially explicit glide path for the region’s most important expanses of tidal marsh ecosystem to move through time and across the landscape to the new intertidal zone of 2100.

The 27,000 acres at Blackwater National Wildlife Refuge (NWR) along with adjacent protected lands like Fishing Bay Wildlife Management Area (21,000 acres) represent one of the largest protected complexes of tidal marshes in the Northeastern U.S. These lands also constitute the largest conservation complex in the state of Maryland and vital part of the Chesapeake Bay’s wildlife network. These wetlands serve many functions, including nursery grounds for commercially important fish and shellfish, natural filters of sediment and nutrient pollution, storm buffers, and destinations for tourism and recreation. They also hold tremendous value for biodiversity conservation and have been recognized as a Ramsar site of global significance for wetlands and an Important Bird Area of global significance for salt marsh bird species.

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Sea level rise projections put Dorchester’s tidal marshes in jeopardy. Based on projections, we defined a study boundary encompassing all lands in Dorchester County south of US Route50. Within this boundary, our assessment is designed to accomplish the following objectives:

a. Identify and map areas of high marsh habitat of highest priority for salt marsh birds.

b. Identify and map areas most suitable for marsh restoration activities, such as adding sediment to build elevation in response to sea level rise, controlling invasive species, and other actions.

c. Identify and map potential marsh migration corridors (upland areas adjacent to current wetlands), assigning approximate priority for their suitability for salt marsh migration.

d. Identify and map potential barriers to salt marsh migration within the marsh migration corridors.

e. Map habitats of rare, threatened and endangered species and other habitats of high conservation priority in order to assess likely impacts of sea level rise and potential management conflicts with conversion to salt marsh.



The assessment is intended to be consistent with the current direction climate change responses of the federal and state agencies with a stake in the future of these marshes. President Obama issued the Executive Order for Chesapeake Protection and Restoration in 2009. It directs affected federal agencies to do the following: quantify vulnerability to climate change in the Bay’s coastal areas, prioritize management strategies, and demonstrate adaptation approaches to restore and protect priority Chesapeake marshes.

Nationally, the U.S. Army Corps of Engineers recognizes that its entire portfolio of water infrastructure projects could be affected by climate change and the need to adapt to climate change. The Corps has authority to undertake Ecosystem Restoration projects and is engaged in adaptation planning work on many levels including guidance on seal level change considerations for civil works programs. In 2010, the US Department of Interior and USFWS outlined their strategy for climate change adaptation which includes the use of 21 Landscape Conservation Cooperatives (LCCs) to provide scientific support for conservation decision-making at a landscape scale to match the scale of impacts on natural systems from habitat fragmentation, water scarcity, invasive species, etc. The basic premise of these LCCs is that collaborative action accomplishes more than any single agency or organization can by itself. In 2011, the USFWS and the National Wildlife Refuge Association developed a Strategic Habitat Conservation Plan (SHCP) for the Chesapeake Marshlands Complex, which includes Blackwater NWR. Salt marsh birds are among the keystone species defined for the SHCP and climate change is identified as the defining issue for this refuge already in transition. An adaptation strategy will provide more details for both near term actions and long term planning for marsh migration. The Blackwater Climate Adaptation Project is consistent with the seven major goals of the National Climate Adaptation Strategy for fish, wildlife and plants which will be finalized in 2012.

At the state level, this project will address two key recommendations made by the Maryland Climate Change Commission in its overarching Climate Action Plan (Comprehensive Strategy for Reducing Maryland’s Vulnerability to Climate Change, Chapter 5). These goals are elaborated upon in the recent Phase II adaptation strategy (Comprehensive Strategy for Reducing Maryland’s Vulnerability to Climate Change: Phase II: Building societal, economic, and ecological resilience). They are specifically:

- 1) The integration of coastal erosion, coastal storm and sea level rise adaptation and response planning strategies into existing programs; and

2) The identification of high priority [natural resource] protection areas and strategically and cost effectively direct protection and restoration actions.

The state of Maryland also uses green infrastructure as a framework for guiding its land conservation efforts. Green infrastructure is defined as a strategically planned and managed network of natural lands, working landscapes and other open spaces that conserves ecosystem values and functions and provides associated benefits to human populations. The state will continue using this framework in the future through its GreenPrint and identification of targeted ecological areas as areas for climate change adaptation are defined.

We intend that the actions we are taking to adapt to a changing climate at Blackwater NWR will be a model for action in wildlife refuges in other US coastal zones facing significant sea level rise. By looking collaboratively across boundaries the project is also consistent with landscape level conservation planning, which is increasingly becoming recognized by many agencies as a needed framework for natural resource management. And finally, through its consistency with green infrastructure planning principles, the project will demonstrate how the green infrastructure approach can be used as a framework for climate change adaptation.